

I claim:

1. An optomechanical system comprising:
a sphere adapted to receive an optical element;
a first set of curved surfaces in contact with the sphere; and
a second set of curved surfaces in contact with the sphere,
the first and second set of curved surfaces so constructed and arranged such
that the sphere has freedom for prescribed movement when required, but is otherwise
stationary.
2. The system of claim 1, wherein each member of the first set of curved surfaces
contacts the sphere at approximately just one point, and each member of the second set of
curved surfaces contacts the sphere at approximately just one point.
3. The system of claim 2, wherein each member of the first set of curved surfaces is a
ball, and each member of the second set of curved surfaces is a ball.
4. The system of claim 3, wherein each ball in the first set of balls has a
corresponding ball in the second set of balls, wherein each ball in the first set applies a force
to the sphere that is collinear with and opposite to a force that the corresponding ball in the
second set applies to the sphere.
5. The system of claim 4, further comprising a housing adapted to receive the sphere,
first and second set of balls.
6. The system of claim 5, further comprising a lid attached to the housing to apply a
downward force upon the first set of balls, sphere, and second set of balls.
7. The system of claim 6, wherein the sphere and each ball in the first and second set
of balls are made of steel.
8. The system of claim 6, wherein each ball in the first set comprises a ceramic ball.

9. The system of claim 8, wherein each ball in the second set comprises a steel ball.

10. The system of claim 6, wherein each ball in the second set comprises a ceramic ball.

11. The system of claim 1, wherein the sphere includes an opening adapted for insertion of a tool for rotating the sphere while the first and second set of curved surfaces hold the sphere in position.

12. The system of claim 11, wherein the sphere and the first and second set of curved surfaces have finishes that permit smooth rotation of the sphere in response to forces applied via the alignment tool while the curved surfaces apply forces required for holding the sphere in alignment during normal use.

13. The system of claim 1, wherein the first set of curved surfaces comprises three curved surfaces and the second set of curved surfaces also comprises three curved surfaces.

14. The system of claim 13, wherein the first set of three curved surfaces comprises 3 balls and the second set of three curved surfaces also comprises 3 balls.

15. An optomechanical system comprising:
a sphere adapted for mounting an optical element in the sphere, the sphere having an opening shaped to receive an alignment tool; and
a plurality of magnets in contact with the sphere, the magnets so constructed and arranged such that the sphere has freedom for prescribed movement when required, but is otherwise stationary.

16. The system of claim 15, further comprising a housing adapted to receive the sphere and magnets.

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